

## A case of maxillary bone metastasis from lung cancer

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### Abstract

We experienced a very rare case of maxillary bone metastasis from lung cancer. The patient was a 77-year-old Japanese man with 1-month history of right alar swelling with hard pain as his chief complaint. Computed tomography scan showed a 1 cm length round lesion in the right nasal vestibule close to the pyriform fossa edge of the right maxillary bone. He had severe pulmonary dysfunction due to recurrent end stage lung cancer and diabetes. The expected remainder of his life would be half a year. Therefore, his very poor condition precluded general anesthesia. To relieve the nasal pain, shorten the stay in the hospital and improve the quality of life (QOL), we performed minimally invasive surgery under local anesthesia. Our minimally invasive surgery could improve QOL by relieving the hard nasal pain until the recurrence of cancer and enable the patient to live at home.

### Introduction

While metastatic tumors of the nose and paranasal sinuses overall are unusual.<sup>1</sup> Bernstein<sup>2</sup> described that the most common location of the primary tumor for metastasis to the paranasal sinus was renal cell carcinoma. Lung cancer is known to frequently cause metastasis. The brain and cervical lymph nodes is a common site of metastasis in the head and neck, but metastasis to the paranasal sinus metastases from lung cancer has rarely been reported in Japan.<sup>3</sup> It is known that such cases are almost always from advanced lung cancer and generally show a poor prognosis. Therefore, it is difficult to radically and aggressively treat the metastatic focus.<sup>3,4</sup> We experienced an extremely rare case of maxillary bone metastasis from lung cancer, and present the clinical findings, imaging and operation of this

case. In particular, we explain how this patient in a very severe condition due to terminal lung cancer could undergo minimally invasive surgery under local anesthesia to improve his quality of life.

### Case Report and Discussion

A 77-year-old Japanese man consulted our hospital with a 1-month history of right alar swelling with hard pain as his chief complaint. A physical examination revealed a submucosal tumor with an intact and smooth surface in the right nasal vestibule. The result of biopsy was suspected malignancy. Computed tomography (CT) scan showed a round lesion 1 cm in length in the right nasal vestibule close to the pyriform fossa edge of the right maxillary bone (Figure 1). He had severe pulmonary dysfunction due to recurrent end stage lung cancer and diabetes. The expected remainder of his life would be half a year. Therefore, his very poor condition precluded general anesthesia. To relieve the nasal pain, shorten the stay in the hospital and improve the quality of life (QOL), we performed minimally invasive surgery under local anesthesia. In the operation, nasal vestibular tumors arising from the bone surface of the pyriform fossa could be resected using a right alar incision approach combined with a right gingival incision approach. After

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Key words: Maxillary bone metastasis; lung cancer; minimally invasive surgery.

Contributions: TK, diagnosis and therapy, composition of this case report; HH, YK, AY, therapy; KI, composition of this case report; RW, pathological diagnosis.

Conflict of interest: the authors declare no potential conflict of interest.

Received for publication: 25 October 2015.

Revision received: 27 November 2015.

Accepted for publication: 17 December 2015.

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Clinics and Practice 2015; 5:819  
doi:10.4081/cp.2015.819

removing the tumors, a right alar flap was used to cover wounds with exposed bone (Figure 2). Histopathology of the specimen indicated poor-



Figure 1. Computed tomography showed a round lesion 1 cm in length in the nasal vestibule (arrow). This mass contacted with the pyriform fossa edge in the right maxillary bone.

ly differentiated squamous cell carcinoma (Figure 3). These cancer cells could be found in the submucosal areas in the nasal vestibule, but not on the surface or in the epithelial layers. The edges of the resected tumor did not show cancer cells. Postoperatively, the right nasal pain soon disappeared. The patient was discharge from our hospital 4 days after the operation. Two months later, findings in CT scan revealed widespread destruction of the maxillary bones. We consulted pathologists and radiologists. As a result, it was thought that maxillary bone metastasis from lung carcinoma had caused submucosal swelling of the nasal vestibule. The evidence was as follows. In the histopathological examination, cancerous areas were located in the submucosa but not in the upper layer, and the operative findings confirmed that cancer tissues had generated from the surface of maxillary bone. Moreover, the patient had undergone lung cancer surgery four years before. The histopatho-

logical characteristics of the lung cancer were similar to those in the present case. The patient desired palliative care rather than active therapy and died at home 6 months after the operation.

In 2008, Sakai<sup>3</sup> reported that paranasal sinus metastasis from lung cancer was exceedingly rare, with only 4 cases in Japan, and tended to occur in males. A final diagnosis requires histopathological examination. Many histopathology results showed adenocarcinoma.<sup>5</sup> Bernstein<sup>2</sup> described that the chief complaints of paranasal sinus metastasis from lung cancer were nasal swelling and mass, as our case. When paranasal sinus metastasis from lung cancer is diagnosed, in most cases the patient is already advanced or end stage lung cancer. Therefore, hospitals it is difficult to radically and aggressively treat the metastatic focus, resulting in a poor prognosis. In most patients, the survival p after the diagnosis would be less than 3 months.<sup>3,4</sup> However,

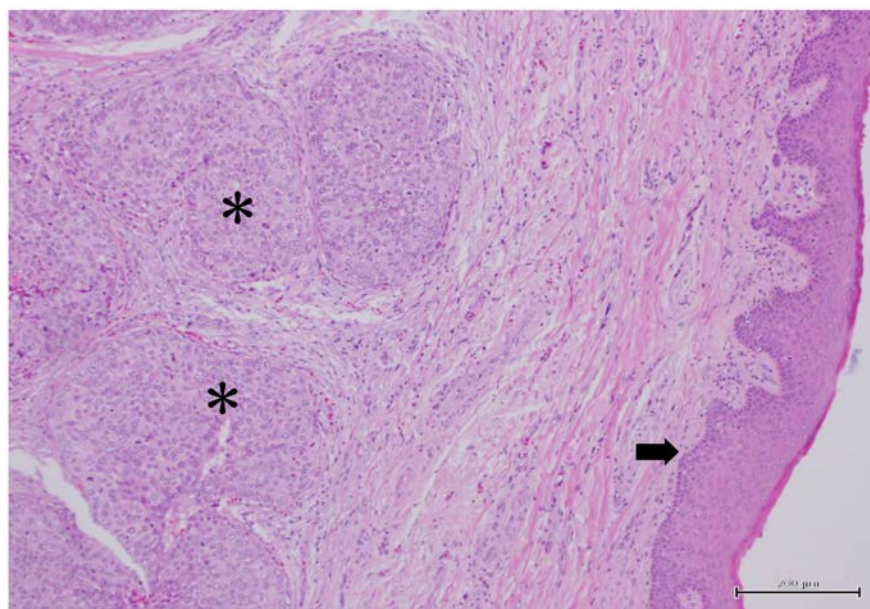
Miyahara<sup>1</sup> described that surgical resection for metastatic tumors in the paranasal sinus was important for alleviating the symptoms. Our minimally invasive surgery could improve the QOL by relieving the nasal pain until the cancer recurred.

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**Figure 2.** A right alar flap was formed (left) to cover the wound with exposed bone after tumor resection (middle). Postoperative wounds from skin sutures were clear two weeks after the operation (right).



**Figure 3.** The histopathological diagnosis was poorly differentiated squamous cell carcinoma. This cancer tissue could be observed in the submucosal area (asterisks) in the nasal vestibule, but not on the surface or epithelial layer (arrow).